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Research Note #6

Some Observations on a Disaster Subculture:
The Organizational Response of Cincinnati, Ohio, to
the 1964 Flood.

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Early in March, 1964, the Ohio River Valley was subjected to very heavy rains. After several days of almost continuous downpour the major river in the valley, the Ohio, reached the flood stage of 52 feet at Cincinnati. This signaled the beginning of the worst flood in that city and in the valley in 19 years and was climaxed on March 11 when the water crested at 66.2 feet.

Throughout Pennsylvania, West Virginia, Kentucky, Ohio and Indiana, thousands were left homeless as a result of flooding from the river and several of its tributaries. Red Cross officials estimated that about 110,000 persons were directly affected by the floods in the five state area. At least nine deaths were attributable to the high waters, seven in Ohio and one each in Kentucky and Indiana. Total property damage went beyond the 100 million dollar figure.

On Tuesday, March 10, a two member DRC team went to Cincinnati to conduct a preliminary survey of the situation. Two days were spent on this initial trip interviewing local officials and making general observations. After the team returned to Columbus, the DRC staff decided that a follow up trip focusing on organizational preparedness or what will be treated in this paper as an aspect of the "flood disaster subculture" would contribute to an understanding of community response to disasters. With this in mind, a three-man team returned to Cincinnati on March 15 for two additional days of study.

Thirty formal and informal interviews were obtained. Cincinnati officials of the following organizations were interviewed regarding the emergency

preparedness and emergency activities of their respective agencies: Police, Fire, Red Cross, Civil Defense, Salvation Army, Public Health Department, Water Pollution Control Division, Highway Maintenance Division, U. S. Weather Bureau, Traffic Engineering, Communications Division, and the Cincinnati Gas and Electric Company.

In this report we set forth a tentative formulation of the disaster subculture concept and some suggestions regarding its relevance to the study of group behavior under stress. Data are also presented regarding the manner in which emergency organizations in Cincinnati functioned during the 1964 flood and how they are generally structured to respond to floods. Our thesis is that this and similar kinds of group responses in the face of danger can best be analyzed as the operation of a disaster subculture.

THE CONCEPT OF DISASTER SUBCULTURE

Cultural Approach to Human Behavior

The concept of culture has been one of the most useful conceptual tools for explaining many of the regularities in human behavior. The classic definition of this concept was given by the anthropologist E. B. Tylor as ". . . that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society."¹ Or as Kluckhohn and Kelly, in a more contemporary statement defines it, culture is ". . . the knowledge of ways of adjusting to our surroundings, both human and physical. . ."² That is, culture refers to those aspects of human behavior which emerge out of social interaction as people attempt to deal with their social-physical environment.

Subcultural Approach

Social scientists derived the notion of subculture from the concept of culture. This idea too, has contributed considerably to the development of theory that provides a more adequate basis for explaining and predicting social behavior.³ The concept of subculture refers to those identifiable variations in the more general and pervasive cultural themes and patterns characteristic of a given society. Subcultures exist when certain groups of people come to share rather distinctive cultural characteristics which sets them off, or differentiates them, from other groups.

Disaster Subculture

Subcultures sometime emerge in response to unique problems and requirements for adaptation experienced by groups located in certain social and ecological situations. One such kind of situation is particular kinds of community emergencies. They at times generate disaster subcultures. However, threat or danger alone to a group is not the crucial aspect. Rather, the key condition for the initiation of such a subculture is the likelihood of the frequent appearance of high stress inducing agents such as hurricanes tornadoes or floods. In short, the appearance of a disaster type of subculture is a consequence of the unique requirements for adaptation posed for a community by recurrent threats. Thus, a disaster subculture may be defined as those subcultural patterns operative in a given area which are geared towards the solution of problems, both social and non-social, arising from the awareness of some form of almost periodic disaster threat. Or as Harry E. Moore who originated the concept of "disaster culture" has

observed, the referent is to the cultural defenses which groups develop to cope with recurrent dangers.⁴

The regularities or patterns of a disaster subculture assume many forms including norms, values, knowledge and technology. A community's disaster subculture serves as a blueprint for individual and group behavior before, during, and after the impact of the disaster agent. In other words, there will exist norms indicating how the threat should be perceived, what personal and organizational behavior ought to be like during impact, and what it ought to be like after impact, e. g., during the restoration and rehabilitation periods.

Such norms reflect the value patterns of a disaster subcultural area. For example, residents may learn to value self-reliance. The consequent norm may be the refusal of outside assistance during periods of community disaster. Knowledge concerning how individuals and groups can most appropriately react during periods of stress to protect life and property may also become incorporated into a community's disaster subculture. Newcomers to such communities learn this knowledge from older residents or from public officials whose function it is to disseminate such information. Finally, certain technological procedures and devices may become a part of a disaster subculture. Examples would be hurricane warning devices and flood control dams.

Logically, it may be possible to label certain disaster subcultural patterns as more rational than others.⁵ Thus, it might be argued the construction of

a hurricane warning system in a community is a more rational or realistic approach for mitigating the impact of hurricanes than a cultural orientation which because such happenings are viewed as the will of God denies the necessity for any kind of preparation except prayer. Comparatively, some disaster subcultures could be viewed as manifesting more rational aspects than others. However, it should be recognized that even less rational patterns in a community's disaster response represents the means by which an attempt is made to deal with the environment. Such patterns do provide solutions to disaster related problems albeit alternative patterns may or appear to be more effective. The notion of disaster subculture then does not refer merely to that which can be labeled rational. It refers to all of the repetitive, individual, and organizational adaptations to the existence of a recurrent disaster threat.

Not all communities are characterized by a disaster subculture. Neither is it always present in areas actually subject to frequent dangers. It would seem that one necessary condition for the emergence of a distinctive emergency response pattern is the perceived presence of a periodic menace to normal community processes. A group might not see recurrent threats as necessitating response or how there could be any solution. However, events which are perceived by a community as presenting perennial problems requiring possible adjustment tend to be taken into account, i. e., cultural solutions are created. Highly destructive, as well as iterative disaster experiences, are also important for the elaboration of disaster subcultures. This relationship is most apparent when one considers the

more rationalistic patterns. Many areas and communities which sustain several similar and major disasters learn from such experiences. Such groups typically establish emergency social mechanisms and develop standard operating procedures and technical skills which progressively reduce the impact of that particular type of disaster.

The disaster literature and some of the research findings of the DRC suggest the existence of specific kinds of disaster subcultures in various parts of the United States, such as in certain sections of Texas and Florida which often experience hurricanes, and areas of the southern Midwest subject to periodic tornadoes. Some communities in such localities, through certain key groups and organizations, become "specialists" in handling particular kinds of frequently occurring natural disasters. Consequently, we may in an abstract sense refer to a community as having a "hurricane subculture" or "flood subculture" when research findings indicate that such groups have elaborated social mechanisms and procedures which are repeatedly referred to in meeting the demands of certain kinds of recurrent emergencies.

It is apparent that any complete understanding of a disaster subculture as it functions in a given community requires analysis at both the individual and social structural levels.⁶ Such social psychological variables as attitudes and motives need to be considered as they reflect the attempt of individuals to find adjustment in the face of periodic danger. No less important, however, is knowledge pertaining to the structural arrangements which emerge in many communities and provide for solutions to disaster-

generated problems.

The present report focuses almost exclusively on organizations and no attempt is made to deal with the individual level.⁷ However, we believe we can learn a great deal about a community's disaster subculture, even in the absence of social psychological data, by studying the emergency organizations which typically become involved in major emergencies. It is within organizations of the type we consider below that many of the rationalistic elements of a disaster subculture are created and perpetuated.

The remainder of this paper will consider the patterned response of emergency organizations in Cincinnati to the threat of floods generally and the March, 1964 flood in particular. Our main thesis is that this patterned response is the organizational aspect of a more general flood disaster subculture.

THE PATTERNED RESPONSE IN CINCINNATI

The Ohio River Valley experiences frequent flooding from the Ohio River and its major tributaries. Floods in this valley have been recorded as far back as 1762. In fact, records of the Corps of Engineers show that since 1873 the nominal flood stage is exceeded on the average of once in 14 months at such a location as Cincinnati. Destruction in the area has frequently been extensive. Only the Missouri River Valley region has suffered more damage from floods in the United States than the Ohio Valley.

The Ohio River at Cincinnati reached its highest flood crest on record in 1937 when it reached 80 feet. This flood left 65 dead and property damage to the extent of 413 million dollars.⁸ Since that disaster, the Ohio River

has crested over the flood stage at Cincinnati 20 times in the last 28 years.⁹

Consequently, community officials and local residents have been habituated to anticipate recurrent floodings. As one city official phrased it:

You know, a newcomer to Cincinnati concerned about such a thing as this flood would be concerned about the state of the people who are affected by it and be quite upset. Until you have lived here for some years and realize that practically every so many years the thing floods over. Therefore, it's a regular condition, not a new condition. And in a sense, although it's a disaster each time it happens, it's not a disaster that this town is unused to.

The Cincinnati area has responded to the recurrent flood threats by developing an elaborate set of emergency standby mechanisms that are geared to minimizing disruption of community life. Local organizations have instituted and maintain complex flood disaster plans and operations which maximize interorganization cooperation in the face of a threat. Provisions exist for gaining rapid access to reliable weather information and river data. Support is given to the maintenance of a flood control technology of considerable magnitude which was developed as a result of past experiences with floods.

Several major organizations have established rather detailed plans and procedures to lessen disruption to normal community activities. Such agencies as the Police, Fire, Red Cross and Public Works Department have emergency flood procedures which have been developed over the years and which are subject to frequent review and revision. Established procedures combined with an adequate reserve of personnel and equipment greatly facilitate the effort of these organizations in coping with problems resulting from recurrent floodings.

Also, well defined relationships exist between the major organizations which are typically involved in flood control activities. These relationships are responsible for a high degree of cooperation and coordination between such key agencies as the Public Works Department, the Police Department and the Cincinnati District U. S. Weather Bureau. The response to the frequent floods is thus a collective effort rather than a series of discrete efforts by autonomous groups.

Much of the impact of an emergency on a community is significantly reduced if prior warning is received and quickly communicated to the public, allowing time for proper preparations to be made. In Cincinnati there are two U. S. Weather Bureau offices whose function is to provide river and weather information for the public. From the data gathered by the DRC team, it appears that the two offices help provide an effective warning system that allows preparedness to meet frequent floods.

From a technological point of view there is an impressive flood control system that also contributes significantly to Cincinnati's preparedness to meet flood problems. In 1948 the Barrier Dam was erected to protect the city's highly industrialized Mill Creek Valley from flood waters of the Ohio. A concrete flood wall has also been constructed. It is about a mile and half long and has 15 moveable flood gates which can be installed to control flooding when the river crest reaches certain levels.

Overall, the existence of these flood operation plans and procedures, established interorganizational relationships, a developed warning system and a well developed flood control technology suggests the presence of a

flood disaster subculture in the Cincinnati area. We turn now to a more specific consideration of some of these patterns.

The Public Works Department

The principal local governmental units involved in flood control in Cincinnati are the Division of Water Pollution Control and the Division of Highway Maintenance. Both are divisions of the Department of Public Works.

Administratively, the Division of Water Pollution Control has official jurisdiction over all of the city's flood control system. This would include the Barrier Dam and pumping facilities, the flood wall, and two other pumping stations. It is in this agency that the decision is made to activate emergency flood control procedures.

Operationally, Water Pollution Control has the responsibility of activating the Barrier Dam and the two other pumping facilities. The primary flood related functions of the Division of Highway Maintenance are the installation and dismantling of flood gates along the flood wall. Prior to engaging in such activity, Highway Maintenance receives its orders from Water Pollution Control.

A well defined standard operating procedure primarily involving these two Public Works divisions and also several other units of government has made for a very effective flood control system. This procedure, which has evolved over a period of years, becomes operative when there is danger that the Ohio River will reach flood stage. At such time, flood operation procedures call for an agreed upon division of labor between such organizations as the Public Works Department, Police, Fire, and Cincinnati Offices of the

U. S. Weather Bureau. Plans also call for the coordination of activities between these organizations and the utilization of certain agreed upon channels and other means of interorganizational communication.

Since these organizations have had years of experience dealing with flood contingencies, working together, and modifying and perfecting their flood plans, much of the potentially disruptive aspects of the frequent floods have been significantly reduced. Although every flood presents slightly different problems, they are essentially enough alike that the organizations can utilize the same general procedures with only slight modification in specific details. When a flood threatens, responsible organizations refer to "routine" flood emergency procedures. And, although the activities of some of these organizations differ during the emergency from their daily routines, they are nevertheless patterned and predictable because they are engaged in during every flood and, as such, are an essential aspect of the experience and expectations of the organizations.

The procedure normally calls for the Cincinnati District office of the U. S. Weather Bureau to relay by teletype to the Division of Highway Maintenance weather information of a critical nature. Highway Maintenance has quick access to weather information because it is involved in various emergency operations throughout the year, such as ice and snow removal. From Highway Maintenance the weather information is given to officials of Water Pollution Control.

On the basis of weather forecasts made by the Weather Bureau and the readings of their own instruments which indicate the rate of rise of the

Ohio River, Water Pollution Control officials determine what action is to be taken by Highway Maintenance and their own division. When information indicates that the river will reach flood stage, Water Pollution Control officials notify Highway Maintenance to proceed with the installation of certain flood gates at certain specified times.

The fifteen gate openings along the flood wall are all at different elevations and are installed according to the flood stage of the river. The Public Works Department has comprehensive plans which indicate the details of each gate showing their locations and the proper order and directions for installation.

The installation of flood gates calls for a large labor force including truck drivers and crane operators. Highway Maintenance has such a labor supply so, therefore, they are assigned this responsibility.

In most flood emergencies, Water Pollution control is able to evaluate weather information received from the Weather Bureau and information from their own instruments far enough in advance to warn businesses located along the river and to give Highway Maintenance sufficient time to erect a particular gate. When a flood gate is installed, it will lock out many businesses behind the floodwall such as railroads and river transportation companies. Consequently, Water Pollution Control has a list of the companies to be notified by telephone in order that they may move equipment and material before a gate is erected. Every attempt is made to evaluate river information in order to warn the companies a day ahead of such installations.

Even more important is the "lead time" that Highway Maintenance has to

have in installing the gates. From experience, Highway Maintenance and Water Pollution Control officials can predict how long it will require to install a certain gate. For most of the gates it takes approximately seven hours. Highway Maintenance has to receive the installation order for a particular gate with enough lead time to permit completion of the work before the river reaches a certain stage and water begins to come through the opening.

Water Pollution Control has the responsibility for making certain that when a Highway Maintenance crew arrives at a location to install a gate all the necessary tools and material are present and ready to be used. Such items as gate parts and sandbags are stockpiled for emergency use and can be gotten without undue delay.

In order to receive maximum benefit from the experience of their personnel, Highway Maintenance has assigned each gate to a specific section of the division. During every flood emergency, the same section has the responsibility for a particular gate. As a result, there is always a nucleus of experienced men on every flood gate.

Once Highway Maintenance officials are instructed by Water Pollution Control to install certain gates, they have the responsibility according to standard procedure to notify various agencies which may be affected. The installation of a floodgate means that certain streets will be closed, consequently, the Police and Fire Departments are notified in order that they can take this into account in their operations. Also, Highway Maintenance is expected to pass on press releases to the news media in regards

to gate installations and street closings.

During flood operations, Highway Maintenance coordinates its work with the city's Traffic Engineering section. At such times it does much of the operational work for the Traffic Engineer. It installs signs, traffic lights and arranges for detours as they are called for by the Traffic Engineer.

Traffic congestion is always one of the chief problems resulting from the floods in Cincinnati. Traffic Engineering, the Police Department and Public Works Department all work together to provide the most desirable emergency traffic flow patterns feasible under the circumstances. Because of their experience with the recurrent floods, they have written records which list every street in town that is subject to flooding. By referring to these records, and by keeping abreast of the rate of rise of the river, it is possible to determine when these streets will be flooded. Some pre-arranged detour routes have been established which help to minimize the effect of street closings. These procedures for handling traffic problems, like the other aspects of the city's flood operation plans, are referred to over and over again and have become routine. In reference to the activities of responsible governmental units during such "emergencies" one Public Works official said, "It's simply a matter of doing what they have done before."

It is customary for officials of Highway Maintenance and Water Pollution Control to have a meeting after a flood operation. They evaluate the standard operating procedure to determine if changes need to be made in dealing with future flood contingencies. In addition to evaluating their own flood control plan and system, the Corp of Engineers makes two inspections

every year during the spring and fall. This systematic evaluation coming from within and outside of the Public Works Department serves to emphasize the possibility for improvement and the need for being prepared.

The outstanding feature about the flood operations of the Public Works Department is the routinization of activities to the degree that the divisions are able to shift from normal duties to emergency activities, without any apparent disruptive or stress producing consequences. Several things seem to account for this. First, flood emergencies since they are slow moving allow emergency organizations sufficient time to prepare for impact. Also, as already noted, the Public Works Department has a communication link with the U. S. Weather Bureau and is supplied with important weather information and warnings. Second, the divisions which become involved in emergency flood control have a well defined standard operating procedure which becomes operative during any flood. This makes for a smooth operation because the personnel know what to do and what is expected of them. In each division there is a nucleus of men, supervisory and workers, who have engaged in the same emergency flood activity over a period of years. As a result, this activity becomes nearly as routine as some of their daily activities. This standard operating procedure provides for essentially the same patterned or structured relationships between personnel as during normal periods. For example, there is essentially little change in decision-making and lines of authority. Actually, the only noticeable change is in terms of tasks or activities. Third, because flooding is a recurrent event in Cincinnati, city officials over a period of years in dealing with this

problem have compiled very reliable data. They can utilize such information to anticipate rather accurately the course of events and to prepare for the most likely situations. It was pointed out above that city officials know what areas and streets will be flooded when the river reaches a certain stage; thus, they are able to establish their strategy based on this information. Finally, the city has the needed technical facilities and the men who are capable to operate them.

The emergency activities of Water Pollution Control and Highway Maintenance followed the normal pattern for such operations during the March flood. On Monday, March 9, Water Pollution Control notified Highway Maintenance to begin installing the flood gates. Since the crest prediction was 66.5 feet, during the emergency period a total of eight gates were installed to protect the city up to a flood stage of 67 feet. The gates were erected starting about 10:00 a. m. Monday through about 4:30 p. m. Tuesday, March 10.

During flood operations, no important unanticipated problems had to be met. As is normally the case, there was no need to receive assistance or material and equipment from organizations or agencies outside of the Public Works Department. Because preparation had been made and there was a definite plan, the situation lost much of its sense of urgency. One Public Works official noted, "Actually, it's no crisis, but simply a change of duty."

The Police Department

Traffic control is the major police function in Cincinnati during floods. It has already been pointed out that a well defined system of relationships exists between the Public Works Department, Traffic Engineering and the

police to cope with the traffic problems resulting from floods and the subsequent closing of various streets in the city. Flood conditions also require an increase of vigilance in affected areas to discourage looting.

Such flood related activities as these represent an extension of normal police duties. The Cincinnati Police, over the years, have had considerable experience mobilizing their organization to meet the increased demands which are made upon them when such an emergency occurs. Regarding each flood as a learning experience, the police, following a flood operation, make written reports evaluating their procedures.

The Police Department, having little water rescue equipment, generally does not get directly involved in rescue work. Instead, it tends to operate in a coordinating capacity between those who need assistance and those who have the necessary equipment to render it. During a flood, the police keep lists of people who own boats and are willing to be called upon to assist in rescue work. As residents in flooded areas call for aid, the police relay the request to the listed boat owners. This system was reported to have been used successfully by the police for several years. The police work in a similar fashion with the Fire Department as the latter has trucks and amphibious ducks which can operate in high water.

The rising flood waters were defined by the police as warranting special attention on Monday, March 9. Some men began working overtime and in at least one police district (District 6) off-duty policemen were called to duty. Police activity in terms of traffic control was centered on the east side of the city where the closing of several main thoroughfares caused the

the biggest problem to normal traffic movement to develop.

Although the flood was the highest in 19 years, the police reportedly experienced no important unexpected problems or demands. The problems encountered were generally interpreted by the police as being within their capabilities and requiring only an extension of normal activities.

The Fire Department

The Cincinnati Fire Department is the organization which assumes most of the responsibility for water rescue during floods. To aid in the performance of this duty the department has three amphibious ducks which can operate in deep water. It also has a number of smaller boats.

The Fire Department has a routine which it typically puts into operation when the Ohio River reaches flood stage. The initial activity is to shut off all fire hydrants in areas which will receive flood water, thus preventing a loss of city water if hydrants are damaged by floating objects and debris. As the flood stage increases, small boats are placed on fire apparatus and boat details are organized. Anticipating the closing of certain key thoroughfares, fire apparatus is moved to special locations in order to facilitate its dispatch to certain areas in case it is needed.

The Fire Department followed the above routine throughout the March flood. Rescue missions were carried out. At the same time fire protection to the city was maintained.

Cincinnati Public Health Department

The Health Department also has a standard procedure which goes into effect when flood conditions develop. One phase of the procedure involves a

close cooperation with the Cincinnati Area Red Cross in its public shelter program. As the Red Cross opens a shelter, the Health Department is contacted and a public health nursing supervisor is sent out to that location to evaluate its physical aspects and to examine the occupants for communicable diseases. A medical doctor is also assigned to make periodic visits to the shelter. Each shelter is systematically inspected by the Health Department for the duration of its occupancy.

The Health Department is also concerned with food and environmental control as it is affected by floods. When a flooding threatens, the Health Department advises food establishments in the areas which will be affected to move their goods in order to protect them from possible flood damage. After every flood, sanitarians visit these establishments to inspect for such damaged food. Each establishment is required to be cleaned and disinfected before it is permitted to reopen.

The Health Department through the facilities of the local news media advised residents of areas which are likely to be flooded to evacuate. After flood waters have subsided, sanitarians are sent out to see that residents clean and disinfect their homes. On such occasions, Health Department sanitarians distribute printed instruction check-lists to residents to guide them in their cleaning.

The emergency operation of the Public Health Department during the March flood followed the above procedure with little variation. As one Public Health official remarked: "We are prepared to handle floods on a routine basis." This routine has evolved over a period of years and is

subject to periodic evaluation. For example, each year the Health Department and Red Cross review their relationship to make sure that matters will operate smoothly in the event of a sudden emergency. This had been done before the March flood.

Cincinnati River Forecast Center and District Office of U. S. Weather Bureau

There are two administratively separate U. S. Weather Bureau Office in Cincinnati, the Cincinnati River Forecast Center and the Cincinnati District Office. Both play important roles in preparing Cincinnati to meet the frequent floods.

The Cincinnati River Forecast Center is responsible for making comprehensive river forecasts of the Ohio and its tributaries and making these data available to eight district offices located in West Virginia, Kentucky, Ohio, Indiana and Tennessee. The Cincinnati District Office is one of two such offices located in Ohio. In making its comprehensive forecasts which cover portions of a five state area, the River Forecast Center focuses upon key points or communities. The district offices are responsible for making forecasts for intermediate points.

The district offices also have the responsibility of disseminating weather information to the public. The Cincinnati District Office passes on weather advisories to several communities in Ohio, Kentucky, and Indiana.

Among other organizations, the District Office maintains teletype contact with the local radio stations, newspapers, and the Highway Maintenance Division of the Public Works Department. When a flood warning is received from the R. F. C., this information is quickly relayed to these agencies. The

District Office also keeps a list of agencies to be contacted by telephone in the event of critical weather information. Such agencies as the Cincinnati Police Department, the Division of Water Pollution Control and the Cincinnati Area Red Cross are among those listed to be called. In case telephone lines are out, the District Office has an arrangement whereby a group of amateur radio operators called the Queen City Emergency Network is to handle communication to these organizations. For those communities outside of Cincinnati, the District Office has appointed "distributors" who are called when an emergency weather condition is developing and who are responsible for disseminating the information to their respective communities.

The District Office reported that rain which began on March 3 accompanied by warm temperatures had the effect of melting the snow on many mountains whose streams fed into the Ohio and its tributaries. These combined factors contributed to rising waters in rivers located in the Ohio Valley. Therefore, on Sunday, March 8, the District Office, according to established procedure, released its preliminary alert that the Ohio River at Cincinnati was in all probability going to reach flood stage and that the residents should prepare for it. In doing this, the office followed standard procedures.

Hamilton County Civil Defense

The Hamilton County Civil Defense Office is the local CD organization which serves Cincinnati. Apparently, Hamilton County CD does not play a major role during most flood emergencies in the city. At least the DRC team learned of no clear cut relationships existing between CD and other local governmental organizations relating to flood problems. This stands in

contrast to the rather clearly defined relationships existing between such agencies as Highway Maintenance, Water Pollution Control and the Police. However, there was reported to be a developing relationship between Civil Defense and the Red Cross aimed at establishing closer cooperation during emergencies.

The complete Hamilton County CD staff reported to its headquarters in Cincinnati on Tuesday, March 10. The major activities of the office were centered in Newton, Ohio, in Hamilton County. On Tuesday, CD began coordinating water rescue activities in Newton. CD also operated one of the county's amphibious ducks there. About 70 families were rescued in Newton by this vehicle. One amphibious duck driven by a CD staff member also assisted firemen in Dayton, Kentucky. Hamilton County CD also loaned the Cincinnati Area Red Cross 100 cots.

Other Organizations

Several other organizations including the Salvation Army, Red Cross, Cincinnati Gas and Electric Company, and the city's Communication's Division also followed standard operating procedures during the flood emergency. These organizations, like the other organizations and agencies discussed above, have developed such response patterns and routines as a result of having to adapt to the periodic floods.

CONCLUDING REMARKS

It has been suggested in this paper that some communities such as Cincinnati are characterized by rather distinct social-cultural patterns geared toward the solution of recurrent emergencies such as hurricanes and floods.

For purposes of analysis, these regularities may be conceived as a local disaster subculture.

In Cincinnati, as important community resources found primarily in local emergency organizations are focused on the problems resulting from the periodic flooding of the Ohio River, the local disaster subculture has taken the form of a flood culture. Such emergency organizations as Public Works, the Police Department and Red Cross have sufficiently trained manpower, established procedures and interorganizational agreements and relationships to enable them to meet the increased demands of floods, thus minimizing much of their impact. In what way the existence of such a subculture would alter the community response to a radically different kind of disaster, has at this point to remain a problematical question.

We feel that the refinement and utilization of the disaster subculture concept as identified in this paper and elsewhere can serve a number of theoretical and practical purposes.

- (1) As an explanatory concept: The disaster culture notion enables us to explain why community A with a flood disaster subculture is more successful in mitigating the impact of a flood than community B which does not have such subcultural patterns.
- (2) For making reliable predictions: Acquiring knowledge about the disaster subculture of a community or area provides us with a basis for predicting individual and group behavior. From a more practical standpoint, such information should prove invaluable for outside agencies that typically contribute their resources to disaster struck communities. National

organizations like the Red Cross and Civil Defense could anticipate many of the community's needs and thus make a more significant contribution. Also, such outside agencies with knowledge of the structure and functioning of emergency organizations would know how best to go about linking their relief and rehabilitation activities with those of the community.

- (3) Toward developing a typology of disaster cultures: The study of disaster subculture in various communities should lay the foundation for the development of a taxonomy of disaster response patterns. From such a taxonomy one could derive scientifically testable hypotheses and generalizations about individual and organizational responses to crises in social systems.

FOOTNOTES

1. Edward B. Tylor, Primitive Culture, Vol. I, (London, 1913), p. 1.
2. Quoted in A. L. Kroeber and C. Kluckhohn, "Culture: A Critical Review of Concepts and Definitions," Papers of the Peabody Museum, Vol. 47, No. 1, 1952, p. 44.
3. See, for example, the utilization of such theory in the study of delinquency: Albert K. Cohen, Delinquent Boys: The Culture of the Gang (The Free Press, 1955) and Richard A. Cloward and Lloyd E. Ohlin, Delinquency and Opportunity (Illinois: The Free Press, 1960).
4. Disaster subcultures also arise during wartime. The Germans developed an elaborate pattern of individual and group responses to the incessant Allied bombings during the later stages of World War II. See Charles P. Loomis, Social Systems: Essays on Their Persistence and Change (Princeton: Van Nostrand, 1960), pp. 151-152.
5. For example, as is done by Harry E. Moore, And The Winds Blew (Austin, Texas: University of Texas, 1964), p. 210.
6. Ibid., p. 195.
7. Some of the patterns at the individual level are discussed by Moore in connection with the "disaster culture" that prevails on the Gulf Coast of the U. S. in connection with hurricanes. See Moore, Ibid., pp. 195-213.
8. Staff Study for the Committee on Banking and Currency, Federal Disaster Insurance, U. S. Government Printing Office, Washington, 1955), p. 60
9. These figures were computed from data given in "Flood Crests and Highest Annual Stages of the Ohio River at Cincinnati, Ohio," U. S. Department of Commerce, Weather Bureau Office, Cincinnati, Ohio.